HW answers

52) $\pm 3\sqrt{10}$

54) $\pm 3\sqrt{2}$

56) $\pm \frac{\sqrt{15}}{5}$

58) $\pm 4\sqrt{5}$

60) x = 1, 5

62) $-2+\sqrt{6}$
$-2-\sqrt{6}$

64) $\frac{-3\sqrt{2}}{4}-4$, $\frac{3\sqrt{2}}{4}-4$

66) $-2\sqrt{7}+8$, $2\sqrt{7}+8$

68) $-3\sqrt{11}-1$
$3\sqrt{11}-1$

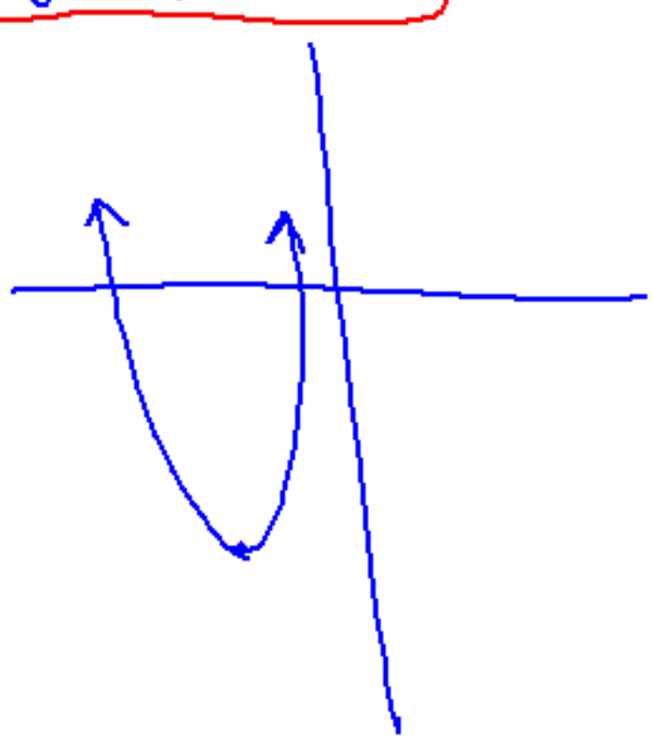
WARM UP

① $x = -b/2a = -3$

$y = (-3)^2 + 6(-3) + 2$

$y = -7$

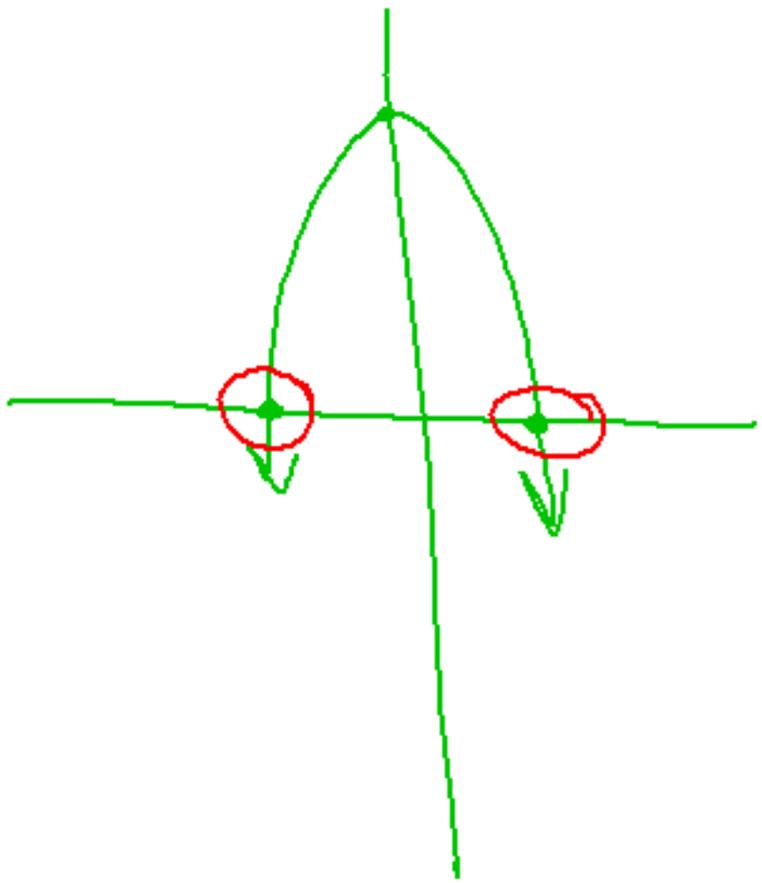
$(-3, -7)$



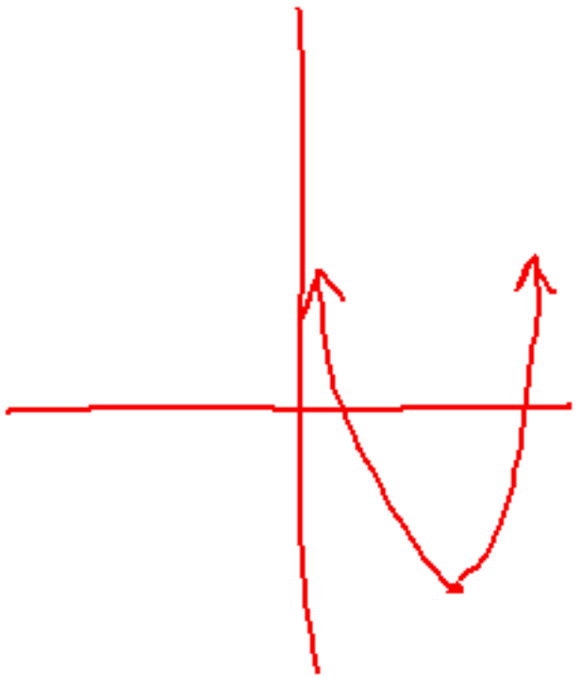
② $x = \frac{2 + -2}{2} = 0$

$y = (-2)(0-2)(0+2) = 8$

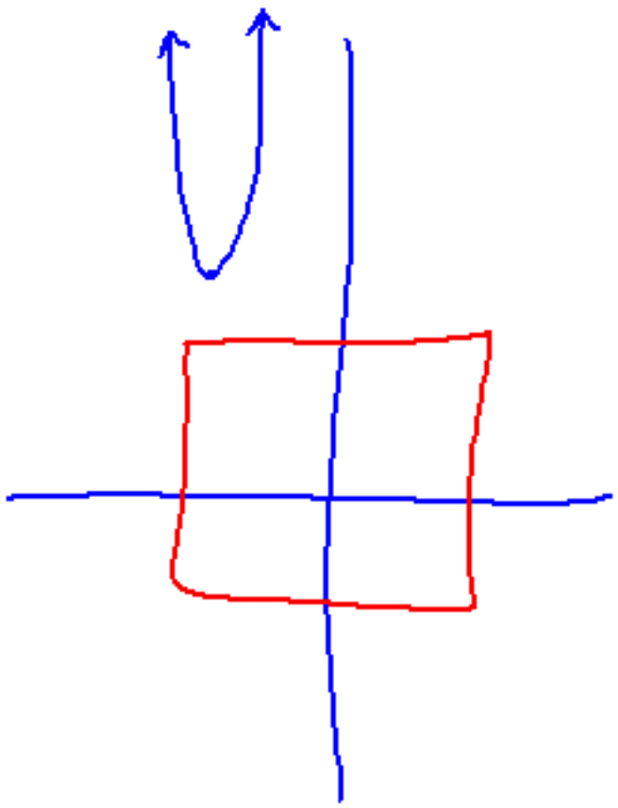
$(0, 8)$



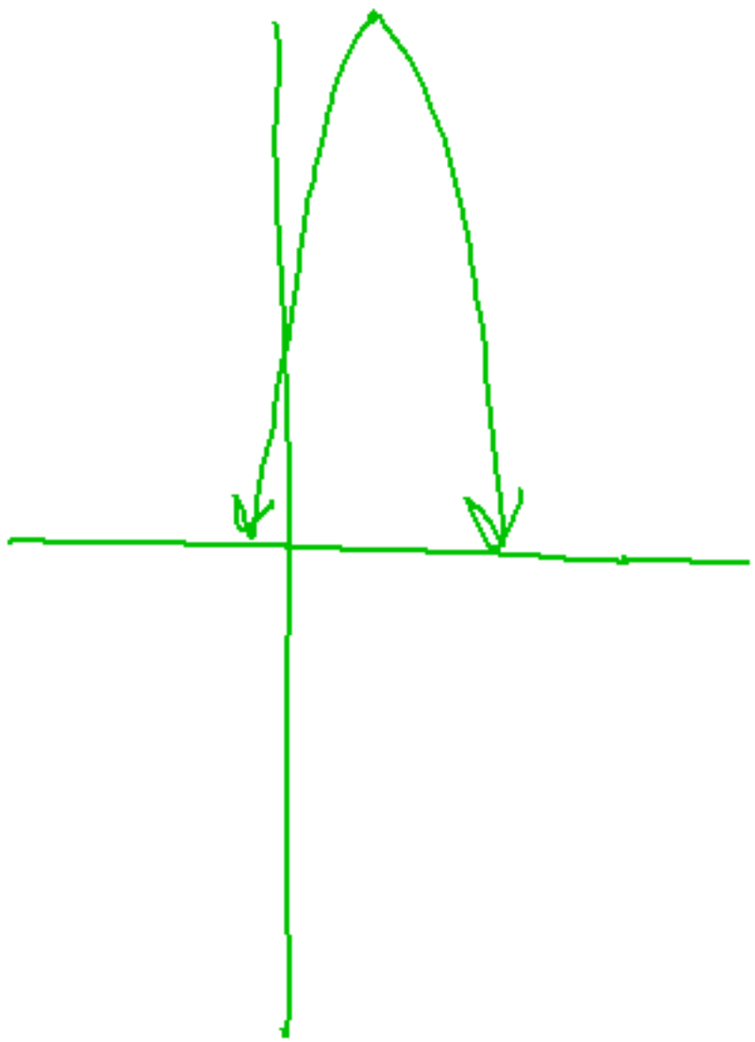
③ (4, -3)



④ (-8, 10)



⑤ (2, 32)



⑥ $2x^2 - 11x - 21 = 0$

$(2x+3)(x-7) = 0$

$=0 \qquad\qquad = 0$

$x = -3/2, 7$

⑦ $x^2 - 4x - 32 = 0$

$(x-8)(x+4) = 0$

$x = 8, -4$

⑧ $2x(x+5) = 0$

$2x = 0 \qquad x+5 = 0$

$x = 0, -5$

⑨ $(x-2)^2+10=110$

$-10 \quad -10$

$\sqrt{(x-2)^2}=\sqrt{100}$

$x-2=\pm 10$

$x-2=10 \qquad x-2=-10$

$x=$ [redacted] $\qquad x=$ [redacted]

12 $\qquad -8$

⑩ $x^2-15=35$

$+15 \quad +15$

$\sqrt{x^2}=\sqrt{50}$

$x=\pm\sqrt{50}$

25 2

5 5

$x=\pm 5\sqrt{2}$

(11) $4(x+3)^2 - 3 = 97$

$+3 \quad +3$

$\frac{4(x+3)^2}{4} = \frac{100}{4}$

$\sqrt{(x+3)^2} = \sqrt{25}$

$x+3 = \pm 5$

$x+3=5$ $\qquad$ $x+3=-5$

$x=2$ $\qquad$ $x=-8$

58 $6 - \frac{p^2}{8} = -4$

$-6 \qquad -6$

$-\frac{p^2}{8} = -10.8$

8

$-1 \cdot -\frac{p^2}{8} = -80 \cdot -1$

$\sqrt{p^2} = \pm\sqrt{80}$

$p = \pm\sqrt{80}$

$p = \pm 4\sqrt{5}$

(62) $\frac{-3(x+2)^2}{-3} = \frac{-18}{-3}$

$\sqrt{(x+2)^2} = \sqrt{6}$

$x+2 = \pm\sqrt{6}$

$x+2 = \sqrt{6}$ $\qquad$ $x+2 = -\sqrt{6}$

$x = -2+\sqrt{6}$ $\qquad$ $x = -2-\sqrt{6}$

(64) $\frac{8(x+4)^2}{8} = \frac{9}{8}$

$\sqrt{(x+4)^2} = \sqrt{\frac{9}{8}}$

$x+4 = \pm\frac{3}{\sqrt{8}} = \frac{3}{2\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{2}}{4}$

$8 = 4 \cdot 2$

$4 = 2 \cdot 2$

$x+4 = \frac{3\sqrt{2}}{4}$ $\qquad$ $x+4 = -\frac{3\sqrt{2}}{4}$

(68) $\left(\frac{(s+1)^2}{10} - \frac{12}{5}\right)^{10} = \left(\frac{15}{2}\right)^{10 \cdot .5}$

$(s+1)^2 - 24 = 75$

$+24 \quad +24$

$\sqrt{(s+1)^2} = \sqrt{99}$

$99 < 9 \cdot 11$ (3 3)

$s+1 = \pm 3\sqrt{11}$

$s+1 = 3\sqrt{11}$ $\qquad$ $s+1 = -3\sqrt{11}$

Intro

① $(x+3)^2$

$(x+3)(x+3)$

x^2+6x+9

② $(x-4)^2$

$(x-4)(x-4)$

$x^2-8x+16$

③ $(x+5)^2$

$(x+5)(x+5)$

$x^2+10x+25$

$(x+2)^2$

x^2+4x+4

-6

$x^2-12x+18$

$(x-6)^2$

$(x-6)^2$

$x^2-12x+36$

$(x+6)^2$

$(x-6)^2$

$x^2 + 12x + \underline{36}$

$(x+6)^2$

* $x^2 + \overset{10}{20}x + \underline{100}$

$(x+10)^2$

$x^2+20x+100 \qquad (x+10)^2$

$x^2+bx+\underline{\left(\frac{b}{2}\right)^2} \qquad \left(x+\frac{b}{2}\right)^2$

(1)

$x^2-2x-2=0$

$+2 \qquad +2$

$x^2-2x+\underline{1}=2+\underline{1}$

$(x-1)^2=3$

$\sqrt{(x-1)^2}=\sqrt{3}$

$x-1=\pm\sqrt{3}$

$x-1=\sqrt{3} \qquad x-1=-\sqrt{3}$

$\boxed{x=1+\sqrt{3}} \qquad \boxed{x=1-\sqrt{3}}$

① $x^2 - 10x - 1 = 0$

$+1 \quad +1$

$x^2 - 10x + \underline{25} = 1 + 25$

$\sqrt{(x-5)^2} = \sqrt{26}$

$x - 5 = \pm\sqrt{26}$

$x - 5 = \sqrt{26}$ $\qquad$ $x - 5 = -\sqrt{26}$

$x = 5 + \sqrt{26}$ $\qquad$ $5 - \sqrt{26}$

② $x^2+6x+5=0$

$-5 \quad -5$

$x^2+6x+\underline{\quad 9 \quad}=-5+9$

$\sqrt{(x+3)^2}=\sqrt{4}$

$x+3=\pm 2$

$x+3=2$ $\qquad$ $x+3=-2$

$x=-1$ $\qquad$ $x=-5$

Ex 2

$$\frac{4x^2-8x-16}{4}=\frac{0}{4}$$

$$x^2-2x-4=0$$

$$+4 \qquad +4$$

$$x^2-2x+1=4+1$$

$$\sqrt{(x-1)}=\sqrt{5}$$

$$x-1=\pm\sqrt{5}$$

$$x-1=\sqrt{5}$$

$$\boxed{x=1+\sqrt{5}}$$

$$x-1=-\sqrt{5}$$

$$\boxed{x=1-\sqrt{5}}$$

(3) $x^2 = 4x - 13$

$x^2 - 4x + \underline{\quad 4 \quad} = -13 + 4$

$\sqrt{(x-2)^2} = \sqrt{-9} \rightarrow 3i$

$x - 2 = \pm 3i$

$x - 2 = 3i$ $\qquad$ $x - 2 = -3i$

$x = 2 + 3i$ $\qquad$ $x = 2 - 3i$